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TITLE: Ribozyme mediated inactivation of the androgen receptor

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promoter interacts with a nuclear factor. *Proc. Natl. Acad. Sci. USA* 87:2705-9 Hollenberg, S. M., Weinberger, C., Ong, E. S., Cerelli, G., Orc, k, Lebo, R., Thompson, E. B., Rosenfeld, M. G., and Evans, R. M. (1985). Primary structure and expression of a functional human glucocorticoid receptor cDNA. *Nature* 318:635-41 Hollingsworth, M., Closken, C., Harris, k, McDonald, C. D., Pahwa, G. S., and Maher, L. J. III (1994). A nuclear factor that binds purine-rich, single-stranded oligonucleotides derived from SI-sensitive elements upstream of the CFTR gene and MUC1 gene. *Nucl. Acids Res.* 22:1138-46 Homann, M., Tzortzakaki, S., Rittner, K, Szakiel, G, and Tabler, M. (1993). Incorporation of the catalytic domain of a hammerhead ribozyme into antisense RNA enhances its inhibitory effect on the replication of human immunodeficiency virus type 1. *Nucl. Acids Res.* 21(12):2809-14 Hong, H., Kohli, K, Trivedi, A., Johnson, D. L., and Stallcup, M. R. (1996). GRIPI, a novel mouse protein that serves as a transcriptional coactivator in yeast for the hormone binding domains of steroid receptors. *Proc. Nati. Acad. Sci. USA* 93(10):4948-52 Horie, K, Takakura, K, Fujiwara, H., Suginami, H., Liao, S., and Mori T. (1992). Immunohistochemical localization of androgen receptor in the human ovary throughout the menstrual cycle in relation to oestrogen and progesterone receptor expression. *Hum. Reprod.* 7(2):184-90 Horwitz, K B., Jackson, T., K, Bain, D. L., Richer, J. K, Takimoto, G. S., and Tung, L. (1996). Nuclear receptor coactivator and corepressor. *Mol. Endocrinol.* 10:1167-77 Hutchison, K k, Dittmar, R D., and Pratt, W. B. (1994). All of the factors required for assembly of the glucocorticoid receptor into a functional heterocomplex with heat shock protein 90 are preassociated in a self-sufficient protein folding structure, a "foldosome" *J. Biol. Chem.* 269(45):27894-9 Imasaki, F, Okab, T., Mupakami, H., Tauaka, Y., Hujil, M., Takayanagi, R., and Nawata, H. (1995). Androgen insensitivity syndrome due to new mutations in the DNA-binding domain of the androgen receptor. *Mol. Cell. Endocrinol.* 120:15-24 Ing, N. H., Beekman, J. M., Kessler, D. J., Murphy, M., Jayaraman, K, Zendergui, O. G., Hogan, M. E., O'Malley, B. W., and Tsai, M. J. (1993). In vitro transcription of a progesterone-responsive gene is specifically inhibited by a triplex forming oligonucleotide. *Nucl. Acids Res.* 21:2789-96 Inokuchi, Y., Yuyama, N., Hirashima, A-, Nishikawa, S. AU., Ohkawa, J., and Taira, K (1994). A hammerhead ribozyme inhibits the proliferation of an RNA coliphage SP in *Escherichia coli*. *J. Biol. Chem.* 269(15):11361-6 Isaacs, J. T., and Coffey, D. S. (1989). Etiology and disease process of benign prostatic hyperplasia. *Prostate* 2:33-50 Isaacs, J. T., and Kyprianou, N. (1987). Development of androgen-independent tumor cells and their implication for the treatment of prostatic cancer. *Urol. Res.* 15(3):133-8 Janne, O. A., and Shan, L. X. 1991). Structure and function of the androgen receptor. *Ann. N Y Acad. Sci.* 626:81-91 Carvis, T. C., Wincott, F. E., Alby, L. T., McSiviggen, J. A., Beigelman, L., Gustofson, J., DiRenzo, A., Levy, K, Arthour, M., Matulic-Adamic, J., Karpeisky, A., Gonzalez, C., Woolf, T. M., Usman, H., and Stinchcomb, D. T. (1996). Optimizing the cell efficiency of synthetic ribozyme. *J. Biol. Chem.* 268:24515-8 Jenster, G., Trapman, J., and Brinkmann, A. O. (1993). Nuclear import of the human androgen receptor. *Biochem. J.* 293(3):761-8 Jenster, G., van der Korput, H. A., van Vroonhoven, C., van der Kwast, T. H., Trapman, J., and Brinkmann, A. O. (1991). Domains of the human androgen receptor involved in steroid binding, transcriptional activation, and subcellular localization. *Mol. Endocrinol.* 5(10):1396-404 Johnson, A, Jinno, Y., and Merlino, G. T. (1988). Modulation of epidermal growth factor receptor proto-oncogene transcription by a promoter site sensitive to SI nuclease. *Mol. Cell. Biol.* 8:4174-84 Joseph, S., and Burke, J. M. (1991). Optimization of an anti-HIV

malpighian ribozyme by in vitro selection. *J. Biol. Chem.* 268:33:12481-8 Kaku, A., Chang, C., Okamoto, T., Tamura, T., and Yoshimura, T. (1993). Immunolocalization of androgen receptor in the seminal gland of male. *Jpn.Poultry. Sci.* 20:413-8 Halliouiemi, P., and Visakorpi, T. (1996). Genetic basis and clonal evolution of human prostate cancer. *Adv. Cancer Res.* 68:223-55 Hallioui, M. B., Gearhart, J. P., and Barrack, E. R. (1993). Sexually dimorphic expression of estrogen receptors, but not of androgen receptors in human fetal external genitalia. *J. Clin. Endocrinol. Metab.* 77(3):692-8 Kamei, I., Xu, L., Heinzel, T., Torchia, J., Kurokawa, P., Glass, C. J., Lin, S. C., Heyman, F. A., Rose, D. W., Glass, C. K., and Rosenfeld, M. G. (1996). A CBP integrator complex mediates transcriptional activation and AP-1 inhibition by nuclear receptors. *Cell* 85(3):403-14 Kashani-Sabet, M., Funston-Jore, T., J. so, L., Wang, W., Yoshida, E., Hainfield, B. I., Mitara, T., Wu, A. M., and Morino, J. G. (1991). Reversal of the malignant phenotype by an anti-ras ribozyme. *Antisense Res.Dev.* 2(1):1-11 Kemppainen, J. A., Lane, M. V., Sar, M., and Wilson, E. M. (1992). Androgen receptor phosphorylation, turnover, nuclear transport, and transcriptional activation: specificity for steroids and antihormones. *J. Biol. Chem.* 267(2):966-74 Kobayashi, H., Morai, T., Holland, J. F., and Ohnuma, T. (1994). Reversal of drug sensitivity of multidrug-resistant tumor cells by an MDR1 (P-gly) ribozyme. *Cancer Res.* 54:1271-5 Kuiper, G. G., de Ruiter, P. E., and Brinkmann, A. O. (1992). Androgen receptor heterogeneity in LNCaP cells is caused by a hormone independent phosphorylation step. *J. Steroid Biochem. Mol. Biol.* 41(3-8):697-706 Kuiper, G. G., De Ruiter, P. E., and Brinkmann, A. O. (1993). Androgen receptor phosphorylation. *Ann. New York Acad. Sci.* 684:224-6 Kumar, M. V., Jones, E. A., Grossman, M. E., Alexud, M. D., and Tindall, D. C. (1994). Identification and characterization of a suppressor element in the 5'-flanking region of the mouse androgen receptor gene. *Nucl. Acids Res.* 22:3693-3698 Fwok, R. P., Lundblad, J. R., Chrivia, J. C., Richards, J. P., Bachinger, H. P., Brennan, R. G., Roberts, S. G., Green, K. R., and Goodman, R. H. (1994). Nuclear protein CBP is a coactivator for the transcription factor CREB. *Nature* 370:223-6 D'Huillier, P. J., Davis, S. R., and Eellamy, A. R. (1992). Cytoplasmic delivery of ribozyme in α -lactalbumin mRNA levels in C127 mouse cell. *EMBO J.* 11:4411-8 D'Huillier, P. J., Soulier, S., Stinnakre, M. G., Lepourry, L., Davis, S. R., Mercier, J. C., and Vilofte, J. L. (1996). Efficient and specific ribozyme-mediated reduction of bovine α -lactalbumin expression in double transgenic mice. *Proc. Natl. Acad. Sci. USA* 93:6699-703 La Spada, R. A., Wilson, E. M., Lupann, D. B., Harding, A. E., and Fischbeck, K. H. (1991). Androgen receptor gene mutations in X-linked spinal and bulbar muscular atrophy. *Nature* 352:77-9 La Spada, R. A., Roling, D. E., Harding, A. E., Warner, C. L., Spiegel, R., Hausmanowa-Petrusewicz, I., Yee, W. C., and Fischbeck, K. H. (1992). Meiotic stability and genotype phenotype correlation of the trinucleotide repeat in X-linked spinal and bulbar muscular atrophy. *Nature Genet.* 2(4):301-4 Lafyatis, R., Denhez, F., Williams, T., Sporn, N., and Roberts, A. (1991). Sequence specific protein binding to and activation of the TGF- β promoter through a repeated TCCC motif. *Nucl. Acids Res.* 19:6419-25 Lange, W., Cantin, E. M., Finke, J., and Dolken G. (1993). In vitro and in vivo effects of synthetic ribozymes targeted against PCR/ABL mRNA. *Leukemia* 7(11):1786-94 Larsson, S., Hotchkiss, G., Andang, M., Nyholm, T., Inzunza, J., Jansson, I., and Ahlberg-Richter, L. (1994). Reduced beta 2-microglobulin mRNA levels in transgenic mice expressing a designed hammerhead ribozyme. *Nucl. Acids Res.* 22(12):2242-9 Lepor, H., and Lawson, P. (1993). Prostate cancer. W. B. Saunders Company. Philadelphia-London-Toronto-Montreal-Sydney-Tokyo Lieber, A., and Strans, M. (1996). Selection of efficient cleavage sites in target RNAs by using a ribozyme expression library. *Mol. Cell Biol.* 16:540-51 Lindzey, J., Grossmann, M., Kumar, M. V., and Tindall, D. C. (1993). Regulation of the 5'-flanking region of the mouse androgen receptor gene by CAMP and androgen. *Mol. Endocrinol.* 7(12):1531-40 Lindzey, J., Kumar, M. V., Grossmann, M., Young, C., and Tindall, D. C. (1994). Molecular mechanisms of androgen action. *Vitam. Horm.* 49:393-432 Long, D. M., and Uhlenbeck, O. C. (1993). Self-cleaving catalytic RNA. *FASEB J.* 7(1):25-30 Lubahn, D. B., Joseph, D. R., Sullivan, E. M., Willard, H. F., French, P. S., and Wilson, E. M. (1999). Cloning of human androgen receptor complementary DNA and localization to the X chromosome. *Science* 249:327-30 Lyamichev, V. I., Mirkin, S. M., and Frank-Kamenetskii, M. D. (1986). Structures of homopurine-homopyrimidine tract in superhelical DNA. *J. Biomol. Struct. Dyn.* 3:667-9 Macke, J. P., Hu, N., Hu, S., Bailey, M. U., King, V. L., Brown, T., Hamer, D., and Nathans, J. (1993). Sequence variation in the androgen receptor gene is not a common determinant of male sexual orientation. *Am. J. Hum. Genet.* 53(4):811-22 MacLean, H. E., Chu, S., Wame, G. L., and Zajac, J. D. (1993). Related individuals with different androgen receptor gene deletions. *J. Clin. Invest.* 91(3):1123-8 MacLean, H. E., Cho, W. T., Rekaris, G., Wame, G. L., and Zajac, J. D.

(1995). Abnormal androgen receptor binding affinity in subjects with Kennedy's disease (spinal and bulbar muscular atrophy). *J. Clin. Endocrinol. Metab.* 80(2):508-16

Mangelsdorf, D. J., Thummel, C., Beato, M., Herrlich, P., Schutz, C., Umesono, K., Blumberg, B., Kastner, P., Mark, M., and Chambon, P. (1995). The nuclear receptor superfamily: the second decade. *Cell* 83:835-9

Mayfield, C., Ebbingsaus, S., Gee, J., Jones, D., Rodu, E., Squibo, M. A. U., and Muller, D. (1994). Triplex formation by the human *h*ras promoter inhibits Sp1 binding and in vitro transcription. *J. Biol. Chem.* 269(17):18232-8

McGinnis, M. Y., and Yu, A. H. (1995). Age-related changes in androgen receptor levels in cranial nerve nuclei of male rats. *Brain Res.* 66(6):531-5

Mestre, A. N., Trifiro, M., Kaufman, M., Kazemi Esfahani, P., Figlewicz, D., Poitreau, G., and Pinsky, B. (1993). Reduced transcriptional regulatory competence of the androgen receptor in X-linked spinal and bulbar muscular atrophy. *Nature Genet.* 5(2):194-8

Michienzi, K., Prislei, S., and Bozzoni, L. (1996). U1 small nuclear RNA oligomeric ribozymes with substrate specificity for the Rev pre-mRNA of human immunodeficiency virus. *Proc. Natl. Acad. Sci. USA* 93(14):7219-24

Migeon, C. J., Berkovitz, G. O., and Brown, T. R. (1994). Sexual differentiation and ambiguity. In Hapay, M. S., Blizzard, R. M., Migeon, C. J., eds. *The diagnosis and treatment of endocrine disorder in childhood and adolescence*. Springfield, Ill.: Charles C Thomas. pp 573-715

Misrahi, M., Atger, M., d'Auriol, L., Loosfelt, H., Meriel, C., Fridlansky, F., Guiochon-Mantel, A., Galibert, F., and Milgrom, E. (1987). Complete amino acid sequence of the human progesterone receptor deduced from cloned cDNA. *Biochem. Biophys. Res. Commun.* 143(2):740-8

Mizokami, K., and Chang, C. (1994). Induction of translation by the 5'-untranslated region of human androgen receptor mRNA. *J. Biol. Chem.* 269:15655-15659

Mizokami, A., Yeh, S. Y., and Chang, C. (1994). Identification of 3', 5'-cyclic adenosine monophosphate response element and other cis acting elements in the human androgen receptor gene promoter. *Mol. Endocrinol.* 8(1):77-88

Moudgil, V. K. (1990). Phosphorylation of steroid hormone receptors. *Biochim. Biophys. Acta* 1055(3):243-58

Mouscadet, J. F., Carreau, S., Goulardis, H., Sukra, P., and Auclair, C. (1994). Triplex-mediated inhibition of HIV DNA integration in vitro. *J. Biol. Chem.* 269(24):21635-8

Murtha, P., Tindall, D. J., and Young, C. Y. (1993). Androgen induction of a human prostate specific kallikrein, hK2: characterization of an androgen response element in the 5' promote region of the gene. *Biochemistry* 32(25):6459-64

Naldini, et al., (1996). In vivo gene delivery and stable transduction of non-dividing cells by a lentiviral vector. *Science* 272:263-267

Nensehmid-kaspar, F., Gast, A., Peterziel, H., Schneikert, J., Muigg, A., Ransmayr, G., FJocker, H., Bartsch, G., and Lato, A. C. B. (1996). CAG-repeat expansion in androgen receptor in Kennedy's disease is not a loss of function mutation. *Mol. Cell. Endocrinol.* 117:149-56

Newmark, J. R., Hard, D. O., Tong, B. C., Carter, E. S., Epstein, J. I., Isaacs, W. B., Brown, T. R., and Barrack, E. R. (1992). Androgen receptor gene mutations in human prostate cancer. *Proc. Natl. Acad. Sci. USA* 89(14):6319-23

Okkawa, C., Hogue, T., Kohda, T., and Taira, K. (1995). Ribozymes: from mechanistic studies to applications in vivo. *J. Biochem.* 118(1):151-8

Ohta, Y., Kijima, H., Okkawa, T., Kashani-Sabet, M., and Scanlon, K. J. (1996). Tissue-specific expression of an anti-ras ribozyme inhibits proliferation of human malignant melanoma cells. *Nucl. Acids Res.* 24:938-42

Ojwang, J. O., Hempel, A., Looney, D. J., Wong-Staal, P., and Rappaport, J. (1992). Inhibition of human immunodeficiency virus type 1 expression by a hairpin ribozyme. *Proc. Nat'l. Acad. Sci. USA* 89(22):10802-6

Olate, S. A., Tsai, S. Y., Tsai, M. J., and O'Malley, B. W. (1995). Sequence and characterization of a coactivator for the steroid hormone receptor superfamily. *Science* 270:1354-7

Perreault, C. P., Labuda, D., Usman, N., Yang, J. H., and Oedergren, R. (1991). Relationship between 2'-hydroxyls and magnesium binding in the hammerhead RNA domain: a model for ribozyme catalysis. *Biochemistry* 30(16):4010-5

Perriman, R., Brerling, G., Egnis, E. S., and Peacock, W. J. (1996). Effective ribozyme delivery in plant cells. *Proc. Natl. Acad. Sci. USA* 93:7219-24

Picard, D., and Yamamoto, K. R. (1987). Two signals mediate hormonodependent nuclear localization of the glucocorticoid receptor. *EMBO J.* 6(11):3333-40

Plaver, J., Thikaudeau, C., and Chastepadnyaya, J. (1994). How does the 2'-hydroxy group drive the pseudorotational equilibrium in nucleoside and nucleotide by the tuning of 3'-gauche effect. *J. Am. Chem. Soc.* 116:6558-60

Pratt, W. B. (1990). Interaction of hsp90 with steroid receptors: organizing some diverse observations and presenting the newest concepts. *Mol. Cell. Endocrinol.* 74(1):69-76

Prins, G. L., Jung, M. H., Vellanoweth, F. L., Chatterjee, K., and Roy, A. R. (1996). Age-dependent expression of the androgen receptor gene in the prostate and its implication in glandular differentiation and hyperplasia. *Dev. Genet.* 18:99-1

Prody, G. A., Bakos, J. T., Buzayan, J. M., Schachter, I. R., and Braening, G. (1986). Autolytic processing of dimeric plant virus satellite DNA.